



# **Who was Henry Hale Bliss?**

- **First recorded automobile crash victim**
- **Sept 13, 1899**
- **100 year total: 30 million victims**
- **Approx. 42,000 victims every year in U.S.**

**What physical entity is most accurately  
measured in the world?**

**Time**

**250 billionths of a billionth of a second**

**(250 / 1,000,000,000,000,000,000)**

# **What is ITS?**

**ITS is people using  
technology in  
transportation to save  
lives, save time, and  
save money**

# UDOT Traffic Operations Center









# High Wind Events

















# The Process

- **We acquire**
- **We notify**
- **We respond**



# Acquire Information

- 911 – Dispatch Calls
- Calls directly to TOC
- Observations on Camera or TMS
- Screen Police/UDOT Radios
- Weather Operations





# Notify

- **Electronic Signs**
- **511 phone system**
- **Highway Advisory Radio**
- **Internet website**
- **Media**
  - Radio
  - Television



# Respond

- Ramp Metering
- Signal Timing
- Activate Restrictions
  - 4 Wheel Drive/Chains
- Incident Management Team
- Control from the electronic signs





# **Tools to Get the Job Done!**

- **Roadway Weather Information System (RWIS)**
- **Highway Advisory Radio**
- **511 phone system**
- **800 MHz Radio system**
- **Video Feeds to the Television News Media**
- **Freeway Traffic Monitoring Stations**
- **[www.commuterlink.utah.gov](http://www.commuterlink.utah.gov)**

ANEMOMETER

# RWIS 70 Statewide

TEMPERATURE AND HUMIDITY



NON – INVASIVE SENSOR



ROAD PUCK



# Traveler Information 511



- Road Conditions
- Traffic Info
- Transit Info
- Car Pool Info
- Ferry Info





# Traffic Incident Management



# Traveler Information





# Traffic Cameras

- Over 500 Traffic Cameras

Bluff & I-15 Fri Jan 13 14:55:33 2006





# TMS Collects Data

- **Detection on the Road**
- **Gives us:**
  - **Volume**
  - **Speed**
  - **Detector Occupancy**
  - **Classification**



RT LANE CLOSED  
1 MILE AHEAD  
MERGE LEFT

**BLACK ICE  
POSSIBLE  
USE CAUTION**



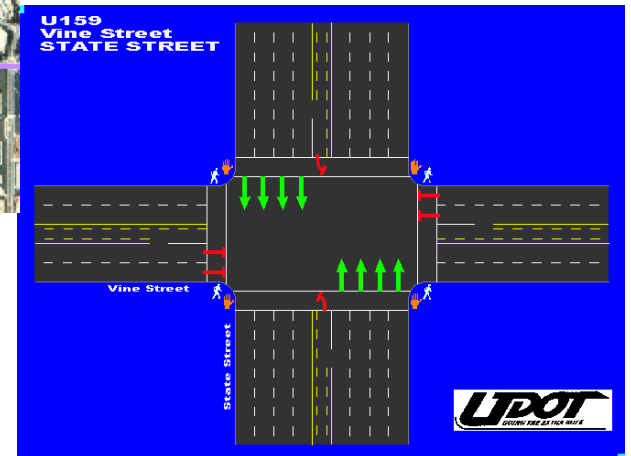
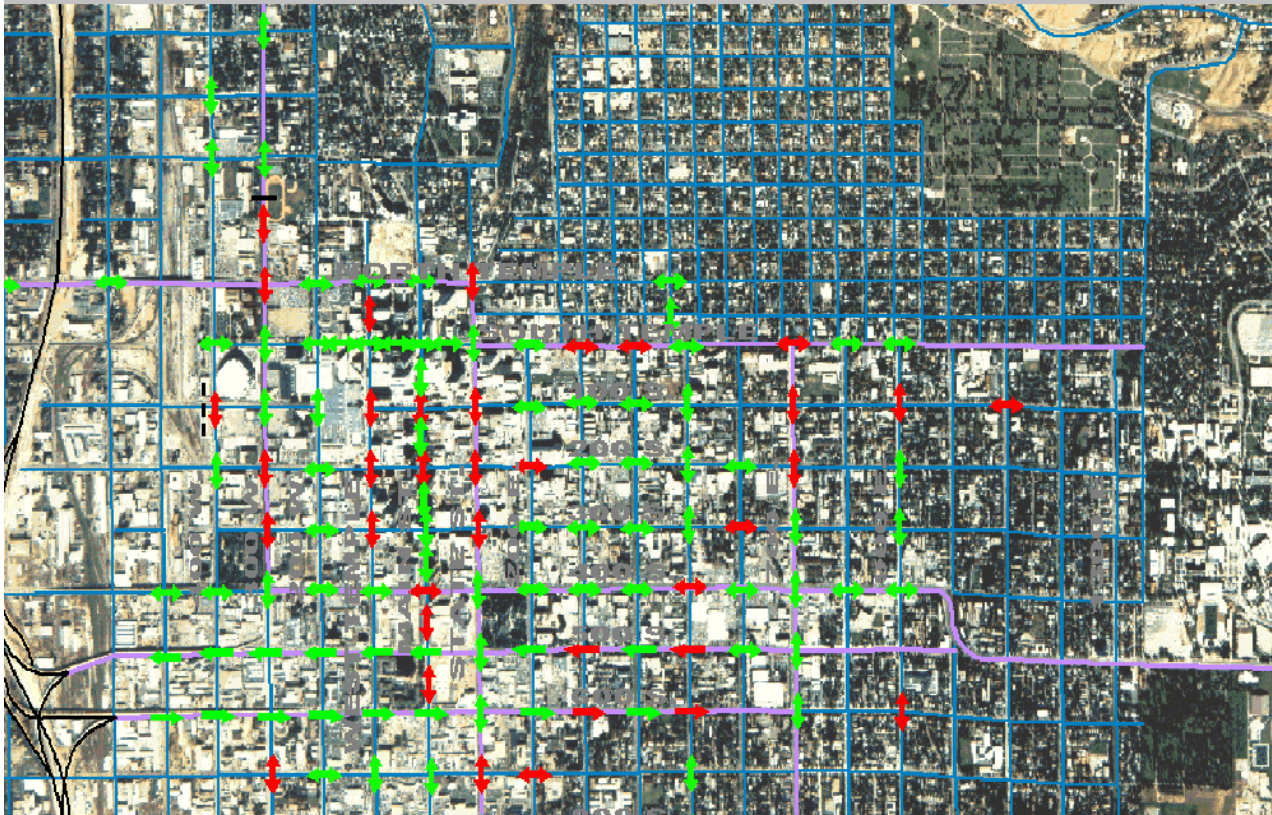


# Ramp Meters

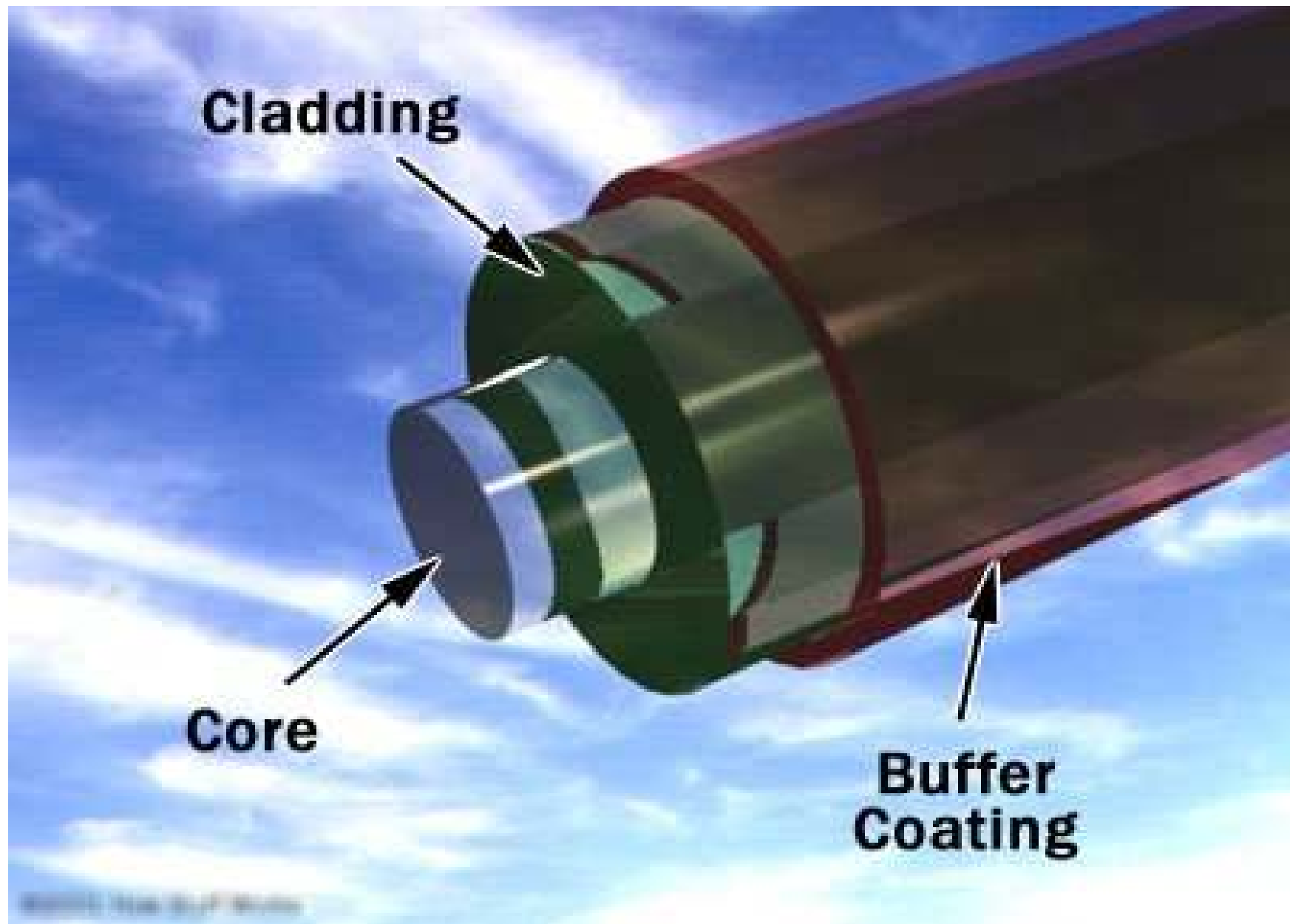


**23 Ramp Meters on I-15**

# Traffic Signal Computer Control



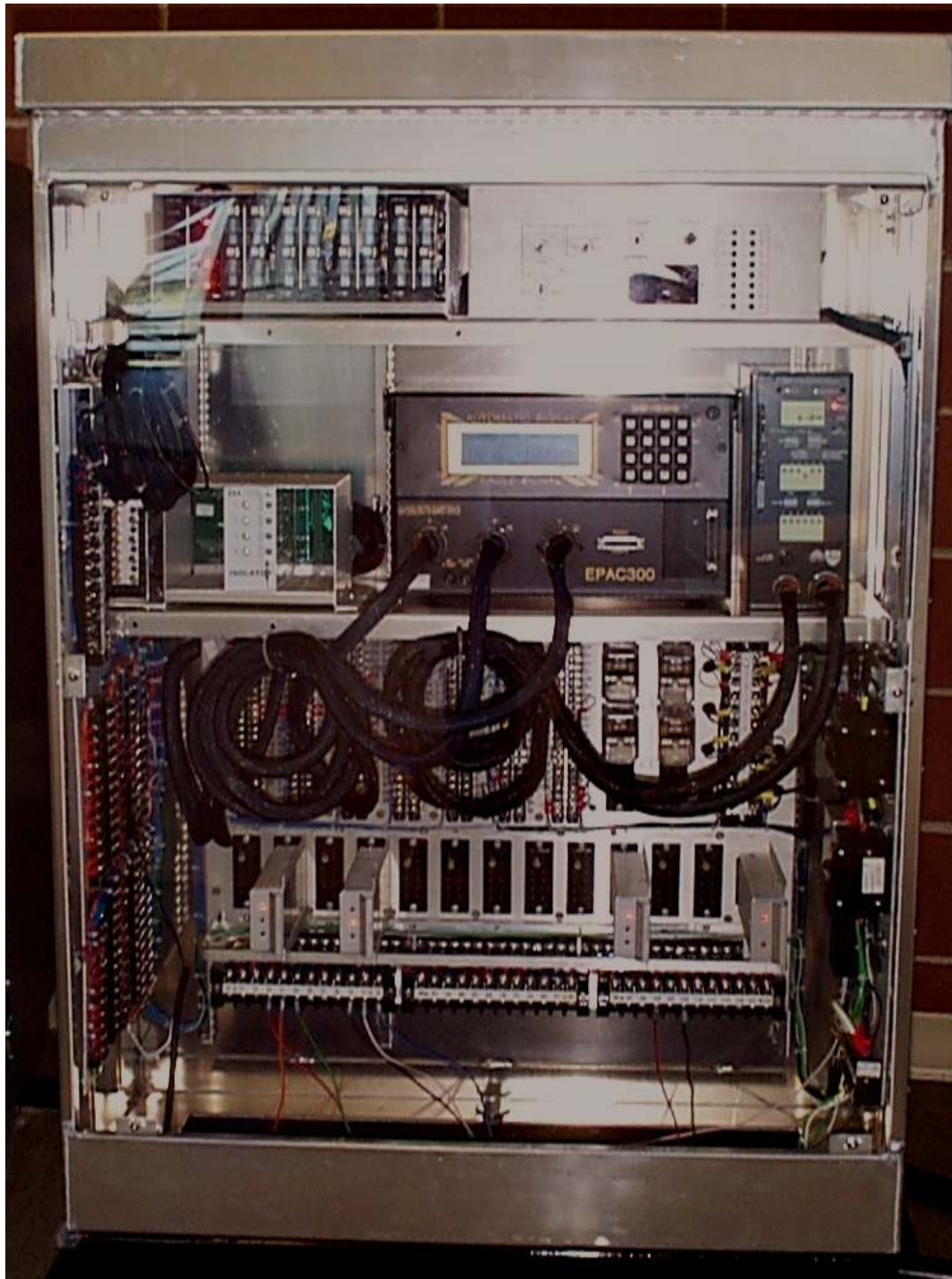
# This Is a Fiber Strand











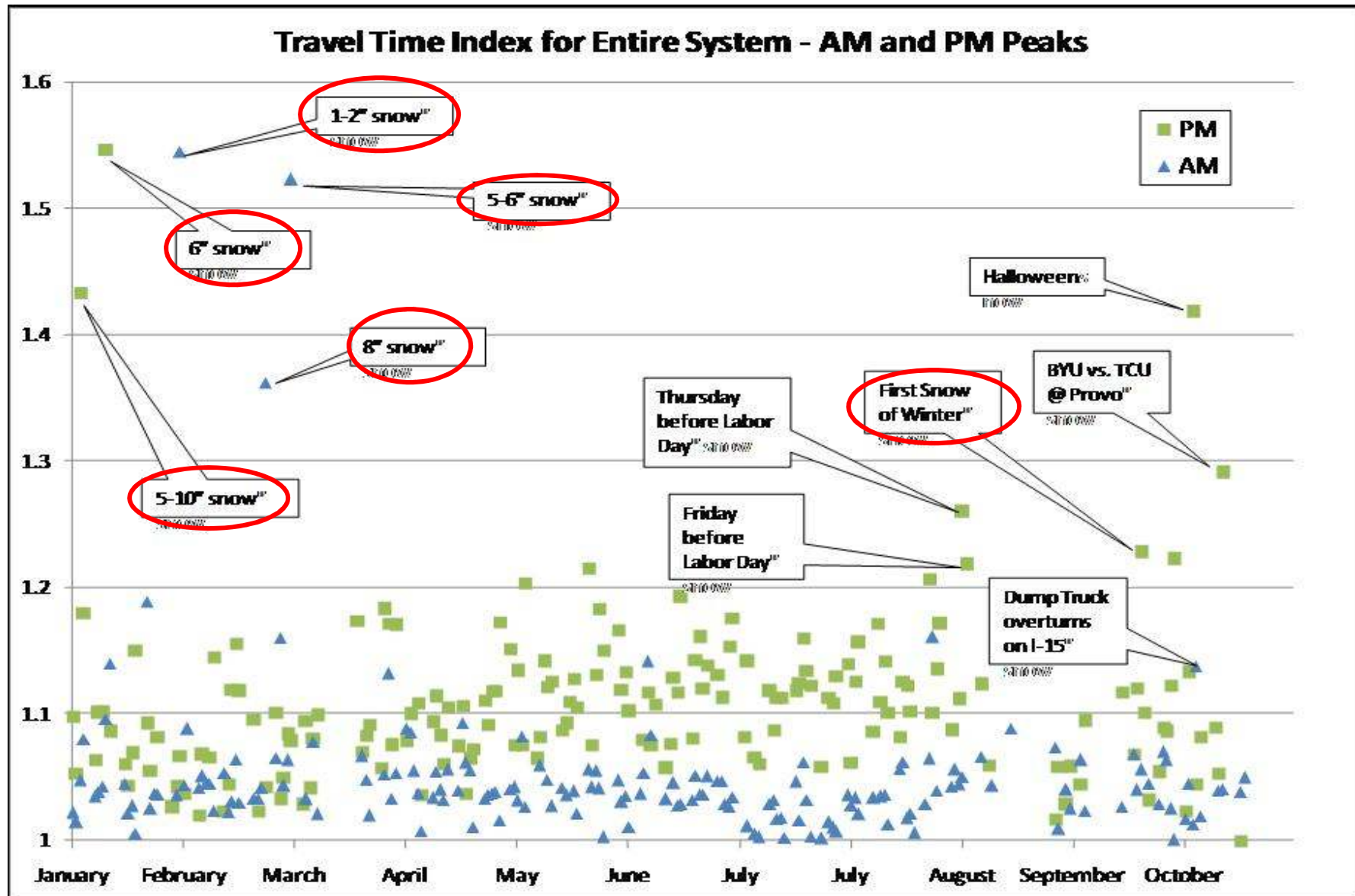


# Traffic Signal Control





# Weather Impact on Commute



NWA Annual Meeting – Norfolk, VA

# Increased Demands...Increased Commute Times

- Population growth = Increase demand
  - 23.5% increase between 2000 and 2008
- Congestion results in annual cost of \$250 million in Utah
  - Recurring (i.e., AM/PM commute times)
  - Non-recurring congestion (wx, accidents)
- Inclement weather plays a significant role in non-recurring congestion
  - Delays, mobility, productivity, and safety
  - *“Large weather events cause trips to take 40-50% longer” (Blackwelder)*



I-215 W 900 S

















TO FARMINGTON  
I-15 14 MIN  
LEGACY 16 MIN

Photo: Sam Sherman, Iteris









# Communication Challenges with the Electronic Signs

